

*Colombia - 1981*

Name \_\_\_\_\_

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# Citadel. NOTEBOOK

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50 SHEETS 4X6 INCHES

NO.1372 END OPEN

NO.1373 SIDE OPEN

NARROW RULED



Colombia

Bogotá 1981

Kali,

Tuluá

Manizales

lluo



last number in Amazonia  
was 2986.

2987. *B. guadua*.

Aug. 6, 1981

2988

*Chusquea* sp.

Dept. of Caldas  
Colombia, Manizales,  
La Bocatoma

Forming dense clumps  
at the edge of the  
road. Plants sending  
many new shoots  
culms erect, solid, ca.  
2.5 cm in diameter  
and up to 6 m high.

(Base of sheath with a  
ring of hairs.)



Aug. 1981  
top of lichen  
bottom of lichen  
to bottom

Forming base of lichen  
at the edge of the  
rock. (But not reaching  
many other points)  
Killer's outcrop, ca.  
2.5 m in diameter  
but up to 1 m high.

Top of rock with a  
ring of lichen

Aug. 1981  
27 29  
top of lichen  
bottom of lichen  
to bottom  
ca. 1.5 m  
up to 1 m high

Aug. 1981  
27 29  
top of lichen  
bottom of lichen  
to bottom  
ca. 1.5 m  
up to 1 m high  
Killer's outcrop, ca.  
2.5 m in diameter  
but up to 1 m high.



Agosto 14, 1981

Chusquea 2989  
Colombia: Dept. of  
Cundinamarca, Mun.  
de Guasca, carretera  
a Gachetá, ca. 1.5 hours  
by car from Bogotá  
alt. 3150 m.

Common Chusquea  
in slopes of hills  
near road. It forms  
dense ~~and~~ clumps  
in open vegetation  
of shrubs ~~and~~ trees,  
arching over and  
~~but~~ ~~not~~ reaching  
up to 4-5 m.  
bark solid ca. 2-2.5  
cm in diameter



Many secondary branches  
below thick 1" branch  
Many new shoots seen;  
in this culm leaf  
with beautiful violet  
color and in some  
places covered with white  
powder wax?, this last  
one also covering sheath  
on branches. ~~and~~ sheath  
of culm leaf sealed at  
base for about 3-5 cm,  
completely fused, open  
above. Blade with  
cordate base, ~~the~~ persistent  
long, narrow and thin,  
± obovate <sup>petiole</sup> leaves.

We found one clump  
almost dry which had  
flowered some time  
~~ago~~ back

Plots: 5 x w roll # 1  
color: Kodachrome.

Bulky: shoot complement  
and internodes

FAA: leaves, buds  
and pieces of stem.

Bud complement: one  
large central with its  
prophylls and many  
very small buds below.  
it an arc,



2990

Aug. 14

*Chusquea* sp. alt. 3150 m.

Same loc. as before.

Some <sup>isolated</sup> ~~isolated~~ <sup>clump</sup> in <sup>rocky</sup> <sup>slope</sup> <sup>not</sup> far <sup>from</sup> <sup>another</sup> *Chusquea* (2989).

Erect culms, nodding on top, about 4-5 m tall and 1.5 cm in diameter.

<sup>culm</sup> Culm <sup>with</sup> with soft centers, becoming soft pith - culm leaf <sup>with</sup> with sheath <sup>sheath</sup> open to the base, <sup>with</sup> with hairs on edge. Blade with <sup>cordate</sup> cordate base, some <sup>base</sup>



times caducous -  
Branch complement  
with <sup>secondary</sup> 2° branches,  
merely appressed  
to the main <sup>primary</sup> 1° branch.  
Above middle of plant  
and in branches of  
1° branches, there are  
more 2° branches -  
Bud complement  
with one central  
and 2 very small  
lateral or independent  
prophylls -

Bulky mat: br. compl.  
& internodes  
FAA: lower, buds & culms  
no photo -

Aug. 14

2991

*Shusquea aff. spencei*

Colombia, Dept. of Cundinamarca,  
Mun. de Guasca,  
carretera a Gachetá, ca.  
1.5 hours by car from  
Bogotá.

alt. 3150 m.

Small clumps growing  
at edge of rocky, humid  
slope near the road.  
Erect bamboo with  
culms nodding at the  
top. Culms solid,  
hard, ca. 2 cm in  
diameters or more, with  
smooth surface.



Culm sheath persistent,  
pubescent with blade  
continuing the sheath  
without demarcation.  
Foliage delicate, with  
very narrow leaf  
blades.



2992

Aug. 16

Chungue  
Bogotá, Dep. Cundinamarca,  
carretera ~~de~~ <sup>to</sup> Bogotá a  
San Cayetano, ~~by~~ Rio  
Neusa, sitio El Borracho  
alt. 3050 m -

FAA: Buds & stem pieces  
Bulky material: inter-  
nodes and branch comple-  
ments -

Growing in a steep slope  
near the road. Erect bam-  
boo with just the top  
of the culm or the  
main lateral branches  
bending over and arching



culm strong, solid, ca.  
--- cm in diam etc,  
smooth, turning orange  
yellow at maturity,  
in some parts of the  
plant.

Culm leaves persistent,  
rotting in place. When  
young, pubescent, covered  
by rather stiff hairs  
which fall in ~~the~~ great  
part ~~at~~ in older leaves.  
Sheath close for a short  
distance at the base, then  
with free edges. No demar-  
cation ~~pubescent~~ between  
sheath and blade.

Branches dropping upright,  
intravaginally but ~~the~~  
breaking the back of

the sheath in their develop-  
ment.

Branch complement!  
with 3 orders of branches.  
A main, central branch;  
one or 2<sup>a</sup> branch on each  
side, slightly thinner and  
several 3<sup>rd</sup> order branches,  
much thinner covering  
by the outside these branches.  
Bud complement shows  
the same pattern: 3

sizes of buds, in separate  
prophylls - 2 medium buds  
on both sides of the central,  
dominant one



Aug. 16.

2993

Chusquea

Colomb. Dept. of ~~Black~~ Guandí-  
namarca, road from  
Cogua to San Cayeta-  
no, Neusa river, near  
"sitio El Borracho"

alt. 3050m.

Growing abundantly in  
small creek not far  
from the road. Big  
clumps with erect culms,  
bending and arching  
on top. Many new shoots  
seen. Culm solid, strong,  
ca. 2.5 cm in diameters,  
with persistent culm  
leaf.



Aug. 19

2994

*Neurolepis*

Colombia, Dept. of Cundinamarca

Road Bogotá - Fomeque -

Laguna de Chingaza, 18 Km

beyond Fomeque.

alt. 3050 m.


Abundant bamboo growing  
in sharp slopes mixed with  
small trees, shrubs, ferns, etc.

Very humid area. They look  
like giant herbs with huge  
lanceolate leaves. Plants

about 4 m tall or over, in dense  
clumps. The base of these

clumps cover by a dense  
mass of aerial roots,

green and embedded in  
abundant mudlage or  
filly.

The rhizome is not in  
deep soil but partially  
cover by loose top soil.  
The bases of the plants are  
also cover by the old,  
rotten sheath. Culms  
woody! short, <sup>solid</sup> thick, with  
very short internodes  
somehow oval in section.  
One bud! per node, the  
~~remains~~ of the node encircle  
by a ring of lignified  
roots several layers  
thick. 

The new shoots seems  
to develop intravaginally,  
pushing the old  
sheaths or they may  
come from a branch  
of the rhizome.



leaves ca. 3.50 - 3.77 m  
long, seciduous! <sup>with</sup> articu-  
lated petiole; the blades  
25-30 cm wide.

The sheath persistent, rotten  
in place and late seci-  
duous. They break off at  
the base leaving a thick  
border, like a short girdle.  
The ligule very big up  
to 13 cm long.

## Bambuse

Aug. 22, 1981

2995

bamboo #1

Colombia, Dept. del Valle del  
Cauca, Municipio de Tuluá,  
Tuluá, Jardín Botánico  
J. M. Espedas.

Alt. 1050 m.

The bamboo collection  
planted here at the  
garden was brought in  
from a private farm.

Many years ago the  
owner of that farm,  
Mr. Ciro Molina Garce,  
got the bamboos from  
us with the help of Dr.  
McClure in 1943.

Do many years later after  
Mr. Molina Garce's death  
Dr. Patiño took a sample



from each bamboo  
and planted in Tulua.  
Somehow the labels  
got ~~lost~~ mixed up and  
they lost the name for  
each one. Besides, the  
bamboos spread out  
and at present they  
took over the place -  
some probably got lost.  
They gave me a list  
of names they got when  
they transplanted the  
bamboo. It is:

*Bambusa tulda*  
" *tuldoides*  
" *nulpan*  
" *polymorpha*  
" *balcooa*  
" *multipler*  
*Melocana baccifera*.

Forming very dense  
clumps, ca 8-10 m high.  
culms erect, curved  
above, with very thick,  
hard walls, about  
4.5-6 cm in diameter.  
culm leaf caducous,  
blade erect.  
Sheath with dark hairs  
in young leaves; later  
they fall.  
Branch complement  
with 3 or more orders  
of branches. One central  
dominant branch with  
2 or 4 secondary branches  
of 2° order on both sides  
and several small bran-  
ches of 3° order below  
all other branches.



Young internodes cover  
in lower half by white,  
powdery wax.  
Internodes ca. 46 - 54 cm  
long -

FAA: buds and leaves  
Bulky: branch complements  
a full piece of culm.  
NO photo -

Bambusa

Aug. 22, 1981

2996

Bambusa #2 -


Same loc. as before.

It forms large, dense clumps,  
ca. 3-4 m in diameter  
and 10-12 m high.  
Bulms very thick and  
very hard, difficult to  
cut. internodes ca.  
40 cm long.

culm leaves cover by  
dark hairs when  
young, and lost when  
old. Leaf blade broad  
triangular with broad,  
undulate auricles.  
When dry, both blade  
and auricles with



undulate edge

In new shoots culm  
leaf with blade very  
large, broad,  with  
white hairs

Culms start branching  
almost from basal  
nodes. Branches spreading  
widely in right angle or  
wider angle.

Branch complement  
with 3 orders of  
branches or more -  
(one central one, on both  
sides, 2<sup>o</sup> order and then  
smaller ones of 3<sup>o</sup> or  
even 4<sup>o</sup> order around -

No spines seen -  
leaf complement of  
2<sup>o</sup> secondary branches

very long with  
widely spaced leaves -  
and these leaves with  
long blades -

leaf complement of  
other branches ~~was~~  
much reduced.

FAA: culm pieces, 1 bud  
and leaves.

Bulky: branch comple-  
ment and pieces of  
culm.



Aug. 23, 1981

2997

*Chusquea* (*Platyacanthus*)

Colombia, Departamento  
del Valle, ~~W. W.~~ Road Cali-  
Buena Ventura, 17 Km  
NW from Cali, villa  
Monica - El Rancho de Yo

(Going from Cali to Buena-  
ventura is on the left  
side of the road, long  
before the bifurcation  
between the old road  
and the new one.

It is a small patch  
of forest still not com-  
pletely destroyed. Across  
the road from it there  
is a nice house,



probably a summer house and next to it a restaurant.

Common bamboo on a sharp, forested, humid, slope along the road. The plants climbing and leaning on the trees or creeping above ground or getting underground when an obstacle and coming out again. They keep trailing above or below ground for long distances making difficult to walk.

This bamboo looks exactly as the *Peltospira* I collected in Bahia.

Almost impossible to find a deep rhizome, they are just culms rooting at the nodes.

The underground portions of culm with no demarcation of nodal region. The upper nodal ridge or band not present and only one bud present. This bud develops in one branch. Culms solid, strong with rather short internodes ca. 25-40 cm long and up to a little more than 1.5 cm in diameter. The nodal region well marked by a difference in the tissues. The whole region is rugose, with




a distinct wrinkled  
band above.

Culm leaf very asperous,  
with blade ~~arborescent~~ cadu-  
cous, this small, narrow.  
There is a line of hairs  
as demarcation on the  
outside, between blade  
and sheath.

Branch complement: one  
large central bud (in  
many places not ~~developed~~)  
and two smaller ones  
below and in many  
cases one not primor-  
dial on each side.

When branch complement  
is more developed, below  
the two second order branches  
there are 2 or 3 smaller ones

 NOT sure yet if these  
are produced from the 2  
second order branches or if  
they come from independent  
buds. After this stage  
the increase number of  
branches don't come from  
independent buds as in  
Chusquea. The branches  
rebranch and in turn  
rebranch again. The  
total branch complement  
might have from 5 to 11  
branches. The 2° order bran-  
ches start developing in  
almost right angle with  
culm, spreading out  
for a while and then  
they curve up or down.  
All branches covered  
at the base by short



bracts. The branches have  
a series of short inter-  
nodes in the proximal  
end.

Leaf complement of  
few leaves with very  
large, broad blades

Bulky mat: 1 rhizome and  
3 pieces of culm and  
branch complements.



Bamboo

Aug. 24, 1981

2998

Bamboo sample # 3

Colombia, Dept. del Valle del  
Cauca, Municipio de Tuluá,  
Tuluá, Jardín Botánico  
J. M. Céspedes.

Alt. 1050 m

Large bamboo forming  
compact, ~~stand~~ dense  
clumps of about 1.50 meters  
in diameter at base.

Culms erect, arching  
above, 10-12 m high  
and 7 cm in diameter.

Culms start branching  
± above middle.

Culm leaf rather large  
with dark hairs on the  
sheath. Blade lanceolate,



cordate at base, rather small and more or less reflexed and scabrous later.

Culm nodes with two ridges, both with hairs.

Leaf with rather large blade.

FAA: culm pieces, buds and apical meristems, and leaves.

Bulky material: internodes, branch complement.

Bamboo

Aug. 24

2999

Bamboo # 4

Same loc. as before -

Bamboo forming a more or less open clump and too dense like the others culms start bending and arching from near base.

More or less same type of branch complement as in the previous bamboo. No new shoot seen. The bamboo is flowering and practically covered by flowers. Very large pseudospikelets. Already a lot of seedling



growing under the  
plants.

Bamboo

Aug. 24

3000

Bamboo #5

Same locality as before.

Small clump with stems  
culms not too adjoined  
to each other, clump rather  
open, about 1.20 m in  
diameters at base.

Few new shoots seen  
and these rather thin.  
Plants start branching  
rather low but branches  
are not so spread out  
as in the other bamboo  
culms, when mature, ca.  
3 cm in diameter.

Culm leaf very pretty with  
large, undulate auricles,  
long oral setae and



narrow, erect, blade;  
the whole leaf smooth  
with not hairs.

Leaf complement rather  
medium size with  
more or less large leaves  
with long oval setae  
(~~of~~ this bamboo growing next  
to the one flowering.)

Bamboo

Aug. 24

3001

Bamboo # 6

Same locality as before.

3, 4 or more clumps of  
apparently the same bamboo.  
They form large, open  
clumps about 1.5 m or  
more in diameter.  
Culms erect, arching  
above, branching from  
near base; the branches  
spreading out.

Branch complement with  
3 or 4 orders of branches  
more or less as in the  
other bamboos.

Culms leaf cover by  
dark hairs. with broad,  
lanceolate blade and



undulate auricles -

no FAA -



Aug. 26

3002

*Neurolepis*

Colombia, Dept. of Cundinamarca, Paramo de Sumapaz, Road to home to San Juan, 3 km on side road to Nazareth alt. ~~3000~~ 3200 m.

Growing on a sharp slope in a very humid area, by a stream.

Growing in the same area and next to this *Neurolepis* was another bamboo, a Chusquea.

Forming very dense clumps with shoots very close to each other at



base

Plants ~~erect~~ erect, about 3 - 3.80 m high.

Rhizome very short, thin, curving up in closed curves with very short internodes. They form a thick, ~~mass~~ dense mass covered by roots.

Above ground and coming from basal nodes we saw some aerial roots. green in color and covered by a mucilage but not as much as in the other species collected before.

Leaves erect and arching above with blades about 1.37 to 1.70 m. long

and 11-12 cm wide, with petioles of 0.65 to 0.83 m long.

Blade narrowing at base and extending on petiole leaf articulated; petiole articulated with sheath and breaking and falling when blade is old. Sheath is persistent; ligule very large.

Bulky material: 1 rhizome.



Aug. 26

3003

*Chusquea tesellata* Munro  
~~Swallenii~~

Colombia, Dept. of Cundinamarca, Paramo de Sumapaz, Road Usme to San Juan, near side road to Nazareth  
alt. 3200 m.

Plants forming dense clumps scattered in shrubby or low tree paramo vegetation. Soil very humid in some areas swampy. Very bad, strong smell around the plant, specially when digging to remove the rhizome, like mierde.



Probably another fungus,  
~~correlation~~ association  
with the bamboo.

Stems thin, up to 1.85 cm or  
so, with short internodes  
and a node or very, very  
short internode at the  
base.

Rhizome very dense,  
compact, pachynorph  
culm leaf: blade falls  
very fast. Sheath persis-  
tent or deciduous late;  
in many places split in  
the back by the pressure  
of the branches coming  
intravaginally.

Branch complement from  
3 to many branches.

They originate from 3  
main ones, the

central dominant. They  
increase the number by  
bifurcation. Each branch  
divides and then again  
each one divides.

One of the branches of the  
pair is segmented at  
the base, with a series  
of 3-4 very short inter-  
nodes, the other no.

The internodes of the bran-  
ches are rather short  
therefore the whole  
branch complement  
looks like a congested  
group of branches.

The branches don't  
spread out like  
in *Chusquea* or *Pithecellobium*.  
They are appressed to each  
other and to the





culms. This is probably why small and look plants look so dense and upright.

~~Many~~ leaves are also stiff, thick with very marked tessellate venation.

We found many new shoots around the plants, they were rather short.

Bird complement:

In lower nodes of culms only one bud, higher up 2 or 3, I am not ~~then~~ sure if they are in separate prophylls or they ~~are~~ are produced by the central one -



entire time in the  
the small birds at  
about 1000 ft. and  
and upright.  
The birds are  
all of, thick with  
and hard to catch.  
We found an egg and  
about around the plants  
the egg was broken. I  
will keep it.  
The birds were of  
color only one bird  
higher up. 2 or 3, 7 am  
But this one of them  
are in a cage with  
or they are in a cage  
by the control but -



21234 - Melrose sp  
of Boreas -



La Boratome, Manizales,  
1988 - 8/6/81

Small - 418 -



